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THE MANAGEMENT

OF THE

DAIRY IN SWITZERLAND.

TRANSLATED FROM THE FRENCH OF

CHARLES LULLIN,

OF GENEVA.

WITH A PREFACE AND OBSERVATIONS,

BY

R. F. DELAP, ESQ.

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PREFACE.

In conformity with general custom, I suppose I must commence with a Preface. During a residence of some months abroad, I endeavoured to observe the institutions of the country I was in, with the almost hopeless endeavour, now that foreign lands are so much visited, of noticing something which had escaped the remark of other travellers.

Country matters and pursuits have a peculiar charm for me, and thus it was, I suppose, that, during a short stay in a remote district, I strolled into the village dairy, to which I found the contributors were numerous. I soon made myself acquainted with the general objects, plan, and working of these associations. After a little inquiry as to whether there was any printed treatise on the subject, I was told there was but one, published by Charles Lullin, of Geneva, as long ago as 1811, but that, though old, it was perfectly descriptive of the present organization of existing Dairy Associations. I am not aware of its having ever been translated into English; I have, therefore, done so, with some few omissions and trifling alterations.

I am confident that the introduction of Dairy Associations would be of great benefit in agricultural districts, and that they are especially adapted to our Irish farmer and labourer, most of whom own a cow, and all of whom look forward some day to possessing one, were it only for the "credit" of the thing.

If in any way the following pages are instrumental in making the possession of a cow by the mere labourer not only a useful adjunct to his comfort, but also a most advantageous investment of his earnings, I shall be gratified in thinking that I have been connected with such a result.

Should this translation of a work which has rendered no small service to a foreign country, meet with the approval of persons competent to judge of its applicability to the habits and wants of our own country, I shall be induced to publish a detailed description of the process employed in Swiss dairies, to the observance of which, in a great measure, is owing the prosperity of these establishments.

These details are the result of the experience of a native of the Gruyère district in Switzerland, a most intelligent man, and contain the entire process and explanation of this craft, so peculiar to the Swiss mountains.

August, 1848.

INTRODUCTION.

The inhabitants of the mountainous parts of Switzerland were the first to think of, and have since brought to perfection, certain associations which have rendered the greatest services to rural economy. These associations are known by the name of Fruitières.* Similar societies have since been established throughout the different villages of the valleys, and they have been further introduced into many of the neighbouring parishes of France, where they have rapidly spread, and everywhere they are being organized and directed by the more intelligent farmers.

The existence to this day of the first establishments of the kind, the rapid increase of their number, the ease with which they overcome old established habits, and country prejudices,—in a word, their results prove the great practical usefulness of these Dairy Associations.

* For want of any analogous English term I shall call them Dairy Associations.

I believe I shall render a service to all classes connected with agriculture by describing these associations, their object, their organization, and their machinery.

SOME ACCOUNT

OF

DAIRY ASSOCIATIONS,

&c. &c.

CHAPTER I.

GENERAL DESCRIPTION OF DAIRY ASSOCIATIONS.

Dairy Associations are associations of farmers and cottiers, who bring to one common dairy the milk of their several cows, where it is manufactured by a skilful person at their common cost.

Each member of the association brings his evening and morning milking to the common dairy. It is measured, and an exact account kept of each delivery. Each day the entire produce of the milk brought by the different members of the association is the property of that person, the sum of whose previous contributions of milk up to that day stands highest in the dairy books. Thus, by means of the common dairy, each member exchanges the amount of several days' milking for an equal quantity of milk, the produce of one day, which is converted into cheese, butter, &c., the same day, on premises arranged for the purpose, and by a person

whose knowledge and skill insure the most advantageous results.

In the immediate neighbourhood of towns, where there is a ready sale for milk, Dairy Associations present but small advantages; but in more remote districts, each owner of a cow, after deducting his own consumption, often wastes the residue of his produce. The more careful, however, by keeping over several days' milk, endeavour to make the best they can of their excess.

The keeping of milk requires the greatest care, and can only succeed on premises properly adapted, and exclusively used for the purpose. With every possible care, it will not, however, keep during the great heat of summer, and in this season of the year cow-owners are obliged to churn and make cheese daily; their cheeses consequently are too small. In hot weather the owner of a single cow,* who has too little milk to churn and make cheese daily, is obliged to consume each day's milking at once, and is unable, during the flush of milk, to lay by a store of dairy produce against the time when his cow will be nearly dry.

Milk, manufactured by the process used in Switzerland, gives three several products, viz., butter, cheese, and a species of curd called "serai."† The ultimate

* A large class in Ireland.

† "Serai" is a sort of secondary cheese, made from a mixture of the whey left after the first cheese, the residue after making butter from cream, and all damaged or soured milk rejected as injurious to the principal cheese. This mixture is heated highly, curded in a peculiar and rapid way, and made up into thick cakes. It is eaten fresh, or salted for later use. It can be kept for months, or even a year.

residue is an exceedingly thin whey, from which all curdy particles have been extracted, and which is used with advantage for feeding and fatting pigs. This residue is in Switzerland called "cuite."

The best butter is that which is made from the freshest cream. Cheese is never good when any (the smallest quantity of) damaged milk has entered into its composition.

Cheese, if made up in small masses (i. e., small cheeses), are of little value, because they dry up quickly, and decay easily.

The quality of cheese is improved by its being kept till maturity in premises adapted to the purpose, by proper care, and skilful treatment.

Where small quantities of milk are manufactured, the third produce called "serai" is scarcely to be obtained, and yet for household purposes it is worth to a farmer one-third of the produce in cheese.

In private dairies the handling of milk and the after care of the produce are generally performed by the person who has the charge of the cows; the dung which adheres to their shoes, and the smell which their clothes contract, render that cleanliness, so necessary in a dairy, difficult for them.

By means of Dairy Associations, a sufficient quantity of milk is obtained to be manufactured daily, and there is consequently a saving of that minute care required when milk and cream have to be kept over.

The quantity of milk being considerable, the most improved means are employed in Switzerland. These are inapplicable to small quantities, as they consist principally in hourly care, requiring, therefore, the whole time of one person.

Thus, cheeses of the best quality are made, which, from their texture, enable them to be exported without injury. They are consequently sent to all parts of Europe, and have become a considerable item of commerce.

In Dairy Associations the manufacture of milk is confined to people who make it their trade and sole pursuit. They work on a large scale, and devote their whole time to this one branch of industry; consequently they acquire a practical knowledge and skill which no others can obtain.

CHAPTER II.

BOOK-KEEPING FOR DAIRY ASSOCIATIONS.

SEVERAL methods of keeping the accounts of the daily exchanges of milk, made through the medium of Dairy Associations, have been proposed. The following has been found on trial to be the best and most simple.

The dairyman opens an account for each member. On the day named for the opening of the dairy for the first time, each member brings, evening and morning, his contribution of milk. This is measured by the dairyman, and carried to each several account. Whoever has contributed the greatest quantity of milk has the day's produce of the dairy.

The dairyman next ascertains the sum total of all the contributions of the day; from this is to be subtracted the amount of milk contributed by the person who has had the day's produce of the dairy, and who thus becomes debtor to the association for the difference.

Each day's contribution of milk brought afterwards by this same person is deducted from his debt. When it is repaid he becomes a creditor. His credit increases gradually, and the day it becomes greater than that of any other member, he again receives an entire day's produce of the dairy. His credit account is deducted from the quantity of milk manufactured for him, and he is again debtor for the difference.

The following day's entire produce of the dairy devolves on the member who has contributed the most milk in the first two days, and so on.

Each member of the society is alternately debtor and creditor, changing from creditor to debtor more or less often in proportion as he pays his debt quickly or slowly (i. e., receiving an entire day's produce of the dairy more or less often, in proportion to the amount of his contribution of milk). Thus the dairy works on, each day paying off its largest creditor.

At the close of each day's work, i. e., after the measurement of the morning milking, which is the last taken into the day's account, the credits against the society are compared, and the highest is given out as next in rotation.

In many districts a portion of the contributors are unlettered. To obviate all doubts such persons may entertain, and to render their accounts clear to them, the following check on the written account is adopted, a method clear to the most unlearned.

The contributions of each member are marked on a common wooden tally, the tens of pints by an X, and the units by an I. The intersection of the X falling on the division of the two portions of the tally, when the tally is separated, the tens are marked on each portion by a V, and the units by an I.

When a member is creditor of the society, he retains the larger portion of the tally; when debtor, he leaves the larger with the dairyman, and retains himself the smaller part.

The tallies remaining with the dairyman are kept under lock and key, precluding thus all fraud.

Where a member is debtor to the association, his account is kept by marking each day on the tally the amount of his debt, after deducting the day's contribution.

FORM OF DAILY ACCOUNT.

	First Day.					Second Day.					Third Day.					Fourth Day.				
	Milking.		Total.	Dr.	Cr.	Milking.		Total.	Dr.	Cr.	Milking.		Total.	Dr.	Cr.	Milking.		Total.	Dr.	Cr.
	First.	Second.				First.	Second.				First.	Second.				First.	Second.			
Joseph,	4	5	9	..	9	8	10	18	..	27	9	9	18	..	45	8	9	17	..	62
Jacob,	7	8	15	..	15	7	8	15	..	30	7	8	15	..	45	8	8	16	..	61
Stephen,	3	4	7	..	7	2	3	5	..	12	3	3	6	..	18	3	3	6	..	24
Francis,	2	2	4	..	4	2	2	4	..	8	2	2	4	..	12	2	2	4	..	16
Peter,	8	9	17	..	17	7	8	15	..	32	8	9	17	..	49	8	9	17	121	..
John,	1	1	2	..	2	1	1	2	..	4	1	1	2	..	6	1	1	2	..	8
James,	9	10	19	..	19	8	11	19	..	38	10	11	21	129	..	12	11	23	106	..
Andrew,	14	16	30	..	30	13	15	28	122	..	14	15	29	93	..	13	14	27	66	..
William,	3	4	7	..	7	4	5	9	..	16	4	5	9	..	25	4	5	9	..	34
Robert,	30	35	65	110	..	29	36	65	45	..	30	37	67	..	22	30	36	66	..	88

Robert has days' produce, 175 quarts.
Deduct credit, ... 65 „
Remain, ... 110

Andrew, . 180 quarts.
Credit, .. 58 „
Remain, 122

James, .. 188 quarts.
Credit, . 59 „
Remain, 129

Peter, ... 187 quarts.
Credit, . 66 „
Remain, 121

CHAPTER III.

DEED OF ASSOCIATION.

When all the members are able to write, no other formality is necessary than mere signing, otherwise their assent is recorded by a notary-public. The deed is then formal, and legally binding on all parties. The following is the form of deed generally used in Switzerland:

1. The undersigned A, B, C, &c., hereby agree to unite and associate themselves for the purpose of establishing a common dairy, to which they may send milk, the produce of their own cows, for the purpose of being manufactured.

2. The affairs of the association shall be managed by a Committee of five, elected by the members of the association. The Committee name one of their members President. In case of illness or unavoidable absence, should any matter of importance have to be decided, the absent member of the Committee is to be replaced by one of two supplementary members, also elected by the society as such.

3. The Committee are to examine all expenses connected with the establishment, and assess them on the members in proportion to the number of their cows.

4. The Committee are to enter into the necessary agreement with the dairyman.

5. The Committee are to see to the observance of the laws of the association, to decide on every violation of rule, and to inflict the proper penalty.

6. The Committee are to decide and settle all disputes that may arise between the different members of the association, on subjects connected with the dairy.

7. There shall be no appeal from the decision of the Committee. The members of the association accordingly bind themselves to abstain from all legal proceedings, and constitute and acknowledge the Committee a court of arbitration, from which there shall be no appeal, in all cases in which they may be concerned as members of the Dairy Association.

8. We, the undersigned members of the XXX Dairy Association do further agree to the following Rules and Regulations :

RULES AND REGULATIONS.

I.

Each member is to bring or send to the dairy his contribution of milk evening and morning, at a convenient hour, to be named by the dairyman.

II.

All milk is to be brought in vessels carefully washed and scalded, and without having been strained.

III.

No member to bring the milk of any fresh-calved cow, under twelve days after calving.

IV.

No member to bring any mixed milk, or any other milk than that of cows.

V.

Members may retain whatever milk they require for their own consumption, but under no pretence to make any butter or cheese at home.

VI.

None but perfectly pure milk to be brought to the dairy, without any addition of water or subtraction of cream. The dairyman may, whenever he chooses, assay and test any milk brought to the dairy. If he suspect any fraud, he is to inform the President and Committee thereof, who will cause the suspected milk to be examined, and the result written down. Two members of the Committee at least are afterwards, at the ordinary hour of milking, to cause the cows of the person in question to be milked in their presence, and they are to compare this milking with that suspected. If, after such examination, the commission are convinced that there has been fraud, the Committee are to declare the sender of such milk expelled the society, and shall further declare all milk that may at the time be owing to him on his account, and also all produce, whether butter, cheese, or serai, which may be in their stores, the property of the expelled member, forfeited to the society.

VII.

On receiving any milk the dairyman is to measure it at once, and mark on each person's tally the number of pints received. The total day's produce of the dairy, on each successive day, becomes the property of the member who on that day was the principal creditor of the society.

In case of equality between two or more members, the person whose milk was earliest delivered at the dairy shall be considered principal creditor, and, as such, entitled to the day's produce of the dairy.

If the total quantity of milk (the joint contributions of one day) exceeds that owing by the society to the principal creditor for the day, the difference is to be set against his next contributions. If, on the contrary, the total quantity of milk, the joint contributions of the day, is less than that owing by the society to the principal creditor, the difference is to be carried to his credit on his new account.

VIII.

No member to bring to the dairy any milk but that of his own cows, nor may any member borrow milk for the purpose of increasing his dairy account.

In case of any member infringing this regulation, the Committee, after examination of the charge, if proved, are, as under Rule VI., to declare such member expelled the society, as also the forfeiture of all milk, butter, cheese, serai, &c., in their premises, the property of the expelled member.

IX.

To expel a member, or declare any forfeiture of produce, the committee must consist of its five members, or of five made up in case of absence, illness, and even by the addition of one or both of the supplementary members of Committee.

X.

The members of the association undertake to fulfil the agreement entered into by the Committee with the

dairyman: they accordingly bind themselves to abstain from all legal proceedings, and constitute the Committee a court of arbitration, from which there shall be no appeal, in all differences that may arise between the dairyman and themselves as members of the Dairy Association.

XI.

Cheese, when cured, is to be delivered to its proper owner only on a written order signed by the chairman of the Committee. Each member is to leave in the store-rooms of the association at least one entire cheese fully paid, as security for his fulfilment and performance of all engagements with the society; otherwise he must find sufficient security, to be approved of by the Committee.

XII.

No member is, on any pretence, to refuse the Committee or its commission free access at reasonable hours to his cows.

XIII.

Every six months the Committee are to examine the cows belonging to the several members forming the association.

CHAPTER IV.

THE DAIRYMAN.

The best agreement to make with a dairyman is fixed money wages, he finding at his own cost certain articles, the consumption of which may be economised by proper care, such as towels, rubbers, aprons, and light. The society finds the necessary salt, the cost of which is one of the items for which a certain deduction is made on butter and cheese, at so much per pound, on their being taken out of the dairy by the person entitled to them.

The person entitled to the produce of the dairy for the day finds the necessary fuel, the dairyman's food, and assists him in churning and making cheese, &c.

Some dairymen, instead of fixed wages, prefer being paid at so much a pound. This is not the best method. Unless the dairyman is perfectly trustworthy, he endeavours to increase weight by heating the cheese too little, pressing it insufficiently, and washing the butter too little.

The best and most skilful dairymen, employed by the largest associations, receive 300 francs a year wages (about £12).

CHAPTER V.

FURTHER REMARKS ON DAIRY ASSOCIATIONS.

THE profits of Dairy Associations are in proportion to the number of their members, because the cost of the first establishment cannot be much reduced where there are only a few members, and the annual expenses are the same for a large or small dairy. Consequently, when in any given neighbourhood the number of cows is not sufficiently great to warrant the expense of a complete establishment, such as we have been describing, the member who has the largest and best dairy gives up his premises for the general purposes, completes the necessary establishment, receives the contributions of milk from the other members of the association, and converts it into butter, cheese, &c., with his own servants.

The accounts of members are kept in the same way as in the public dairies we have described, and the members unite in a deed and regulations, and name their Committee. The Committee enters into the necessary agreement with the individual member who finds the premises for the common purposes, superintends all the working of the dairy as if it were public, and agrees with the proprietor of the premises for his daily retribution. These payments are made in kind, taken off the daily produce of the dairy, and are calculated so as to pay all expenses both of rent and labour.

This organization, where the association has but few

members, is generally adopted on account of its economy. The association are saved all expenses of building, the individual member who finds the premises gains a rent for his dairy, which heretofore was only used by himself, and profits also by the more advantageous employment of his servants' time.

In establishing an associated dairy, we endeavour to obtain daily milk to the amount of from 600 to 800 pints in the season of flush. If this quantity is much exceeded, it becomes necessary to make cheese twice a day during the summer months, and it is not advisable to organize a Dairy Association in which it would be habitually necessary to make cheese twice a day.

One man cannot regularly give the necessary time and care to the cheeses in the common store, when he is obliged to measure a double quantity of milk, and go through all the process of cheese-making twice in the same day. This double work can only be allowed during a few weeks in the year, i. e., during the longest days, which is also the season of the greatest abundance of milk.

The number of cows belonging to one and the same Dairy Association may vary from fifty to a hundred. This necessarily depends on the circumstances of the district itself, the distance of the neighbouring villages, state of roads, &c. Many villages send nearly two miles to the public dairy.

In districts where forage is abundant, and where farmers are, consequently, able to feed well during the winter, the usual plan is to aim at producing milk at this season of the year, and therefore autumnal calving is aimed at. In districts thus circumstanced, the yield

of milk and the work of the dairy is tolerably regular all the year round.

In districts where clover and artificial meadows are scarce, farmers are content during the winter to give their cows little more than a mere subsistence. They lay themselves out for spring calving, so that the flush of milk may coincide with the greater abundance of grass. In such districts the quantity of milk brought to the dairy is subject to great variations. In spring, and during a portion of summer, it is considerable; the latter end of summer it begins to diminish; and in autumn the dairyman will probably be obliged, in order to avoid making cheeses of too small weight, to keep over several milkings; in winter, as many as six milkings (i. e. three days' produce) are worked together, and in some districts the dairy is entirely closed till the return of spring.

CHAPTER VI.

RENT PRODUCED BY COWS THROUGH THE MEDIUM OF DAIRY ASSOCIATIONS.

THE rent produced by cows is ever in proportion to the care bestowed on them, and the quality and quantity of their food.

In one of the best managed herds of cattle, where no calves are reared, which is recruited with bought beasts, carefully chosen, abundantly supplied with the best quality of forage, and stable-fed,* each cow has, on an average, given 2219 quarts of milk in the year: 221 quarts were consumed as milk; 1998, sent to the public dairy, produced 270 pounds of cheese, 76 pounds of butter, and 176 pounds of serai.†

	Fr.	*Cent.*	*Fr.*	*Cent.*	
270 pounds cheese, at . .	—	49	132	30	
76 pounds butter, at . .	—	98	74	48	
176 pounds serai, at . .	—	10½	18	48	
221 qrts. milk consumed, at	—	11	24	31	
1 calf, at	26	75	26	75	
			276	32	
Dairy expenses being paid by a deduction of 9 centimes per pound of cheese, ...			23	88	Deduct cost.
			252	44	

Or £10 each cow.

* This is the universal practice in Switzerland, and experience has proved it to be the best method. I have myself seen cows eight and ten years old, which, since their first calving, had never left the stable, not even to drink, as the stable contained a water-trough.

† I have here called the French litre a quart, and the killogramme two pounds.

This average amount is very rare, and is only to be obtained in the most carefully managed and conducted herds.*

Between the small cow of the cottier, which suffers from insufficient food in winter, and which, in summer, picks up a scanty allowance along the banks of ditches and common lands, and the farmer's goodly cow, which never leaves its abundant manger, the average money-rent varies in the exact proportion of the care and attention given, from the maximum of 250 francs, to a minimum of 100 francs (from £10 to £4, or £4 to £10).

In all districts, except in the neighbourhood of large towns, the rent of cows is increased by the substitution of associated for private dairies.

The advantages to be obtained through the medium of associated dairies are great in the case of daily labourers, cottiers, and small holders of land, who formerly sold neither milk nor dairy produce, but consumed as best they could. After the lapse of one year, such persons, in addition to their own consumption of milk, and dairy produce of a far superior quality, but now regulated by their real wants, may have a considerable excess economized for them.

* In many parts of England it is customary to give at the audit a present of a gown to the dairywoman who averages £10 a cow. A friend, who has very extensive practice as land-agent in England, told me it is seldom the gown is earned.

CONCLUSION.

EVERY person must admit that a very considerable amount of valuable produce is insured by the foregoing system of mutual loans, made successively by every member of a Dairy Association to some one of their members ; the result being, that, within the district of the association, not one single pint of milk is produced which is not convertible into butter, cheese, &c., by means the most economical and approved.

The advantages of Dairy Associations depend on the great principle of division of labour.

Political economy, with too much truth, accuses the small holders of land, not only of being unable to produce any article of general exchange and commerce, but also of not growing a sufficient quantity of food for their own maintenance.

Dairy Associations diminish this evil. Through their instrumentality, very small holders of land are able to produce and bring to market an article exactly similar to that produced by establishments working on the largest scale.

Although Dairy Associations, and their subsequent progressive improvements, were in Switzerland owing to a very advanced state of rural civilization, they are not the less fitted and apt to become the cause of similar advantages in countries where they may yet be introduced.

Dairy Associations become centres of useful commu-

nication, they create between neighbouring farmers the relationship of common interests, founded on uprightness and honesty in dealing. They teach them the value of small economies, and the use of figures, shewing them practically what great advantages may result from an interchange of good services, and mutual assistance. They set before the eye daily, an example of cleanliness, by means of processes of which it is the essential foundation; they prove its value, and tend to induce habits of general cleanliness and order. Finally, they stimulate each member to rival his neighbour in the care bestowed on his cattle, which alone can increase their yield of milk. This involves greater efforts to produce the necessary food: the dunghill must by every means be increased; the growth of green crops, house-feeding, &c., must ensue.

Wherever Dairy Associations have been established on the Continent, a very few years shew a marked increase and improvement in the number and quality of horned cattle, and a commensurate improvement in every process of agriculture.

By means of Dairy Associations the produce of the largest herd, as well as the surplus milk of the poor man's cow, is converted into valuable food, capable of being kept and easily transported. Thus they stimulate agriculture in the more remote districts, far removed from towns and markets.

To the labouring man and small farmer, they render a peculiar service, by enabling them, during the abundance of milk, to lay by as an economy the surplus produce of their cows, in the shape of a wholesome and palatable food, which they may either consume themselves when milk is scarce, or convert into money for *the supply* of their other wants.

The female portion of our rural population will likewise gain the time formerly spent in churning and other dairy occupations, which they may easily turn to valuable account for domestic and household works.

In addition to the economy of time, Dairy Associations present the further advantage in cheese-making, of a considerable economy of fuel. A given quantity of milk placed in a thin copper of a proper form over a well-constructed fire-place, requires far less fuel to heat it for cheese-making, than the same quantity would require at several times in smaller vessels on the common open kitchen-fire.

When Dairy Associations are introduced into any district, the first established are considerable gainers, owing to the price paid in consequence of the superior quality of their produce. Gradually the depreciation of the produce of the small neighbouring dairies is such that their owners are obliged to unite in self-defence, and the associated system becomes general, and spreads on all sides.

In the Canton of Vaud there has not been, for many years, a single hamlet without its public dairy. The larger villages, and even the smaller towns have imitated the system; and the greater part of Switzerland, and the neighbouring portions of France, are fast adopting these institutions.

Another branch of industry besides agriculture may benefit by the introduction of Dairy Associations.

Whey is susceptible of being used for bleaching purposes. This use of it, however effectual, has been much restricted by the impossibility of procuring it in sufficient quantities, and the use of whey for bleaching purposes has been confined to the finest quality of

linen. This difficulty, however, might be obviated by establishing a bleach-green, in a situation central to several Dairy Societies, which could thus furnish whey in sufficient quantity to allow of this application of it.

Note.

Dairy Associations are not the only establishments in Switzerland of their kind; most villages have their public bak , , in which the different members of the society knead their own flour, and bake their own dough, either alone, or two or three neighbours together. In some villages the best maker of bread is installed at the public oven, and bakes all dough brought to him at a price per pound, fixed by the association.

Threshing-machines have also been established on the same principle, a d have been productive of considerable advantages, especially when worked by water.

I have also seen a steam threshing-machine on wheels, which was very easily drawn from place to place. This was a private speculation, and was, with the necessary men, hired out at so much per day, or at a price per corn threshed. I confess I am no great advocate for its adoption at home. It appears to me the risk of fire must more than outweigh its advantages, and unless improved so as to obviate this great objection, I acknowledge I should be sorry to see it (despite its "intelligence") arrive at bell-ring at the gate of any barn of mine.

THE END.